



## Education

### **North Carolina State University**

*Raleigh, NC*

- PhD, Comparative Biomedical Sciences, August 2016 – December 2020
  - Funding support via Comparative Medicine and Translational Research Fellowship, NIH T-32 Award (Grant T32OD011130) August 2018 – December 2020
- Teaching in Biomedical Sciences Certificate, December 2020

### **Cornell University College of Veterinary Medicine**

*Ithaca, NY*

- DVM, June 2012

### **Stanford University**

*Stanford, CA*

- MS, Biological Sciences, June 2006
- BS with Honors, Individually Designed Major in Astrobiology, June 2006
  - Thesis: *The Role of Nucleotide Excision Repair and Photoreactivation Repair in Correcting UV Induced DNA Damage in S. Cerevisiae*

## Professional Experience

### **Clinical Assistant Professor, Small Animal Internal Medicine**

*University of Wisconsin:* October 2020-present

*Madison, WI*

- Supervisory case responsibility for inpatient and outpatient Internal Medicine specialty service at UW teaching hospital
- Supervise rotating interns and SAIM and other specialty residents
- Instruct 4<sup>th</sup> year veterinary students on clinical rotations and preclinical veterinary students in lecture and laboratory courses
- Research focusing on epidemiology and modeling vector borne zoonotic diseases in a One Health context

### **Clinician Investigator Resident, Small Animal Internal Medicine**

*North Carolina State University:* July 2015- July 2018

*Raleigh, NC*

- Primary case responsibility for inpatient and outpatient Internal Medicine specialty service at NCSU teaching hospital; related specialty rotations, teaching responsibilities for interns and veterinary students
- Achieved board-certification in Small Animal Internal Medicine through the American College of Veterinary Internal Medicine
- Research focusing on epidemiology of *Bartonella* infection in dogs

### **Associate Veterinarian**

*Brighton-Eggert Animal Clinic:* January 2014-June 2015

*Tonawanda, NY*

- Companion animal preventative medicine and urgent care, with caseload approx. 200 patients per month

### **Emergency Veterinarian**

*Veterinary Emergency Clinic:* August 2013-February 2014

*Cheektowaga, NY*

- Managed inpatient and outpatient emergency and critical care at a nights-and-weekends only hospital

### **Assistant Professor**

*D'Youville College:* August 2013-May 2014

*Buffalo, NY*

- Developed original curriculum for, and taught, introductory chemistry course at Middle Early College High School, a five-year program in which successful students graduate with a high school diploma and Associates Degree (four sections of 20-30 students in grades 10-12)

### **Small Animal Rotating Intern**



*Veterinary Emergency and Referral Group: June 2012-July 2013*

*Brooklyn, NY*

- Maintained primary case responsibility for inpatient and outpatient emergency and critical care services in busy urban 24-hour emergency hospital; expanded skills during specialty rotations

### **Research Assistant**

*Las Cruces Biological Station: July-Aug 2010*

*San Vito, Costa Rica*

- Collaborated with an international team of researchers and assistants to establish field test plots and collect data on seed predation and sapling growth in tropical rainforest ecosystems; assisting graduate students from University of Georgia on their thesis research

### **Post Graduate Researcher**

*University of California San Francisco, McDonald Lab: 2006-2008*

*San Francisco, CA*

- Lab dedicated to in vivo research on the cellular mechanisms of angiogenesis, microvascular remodeling, and plasma leakage in animal models of chronic inflammation and neoplasia
- Developed research skills working directly with senior scientists and post-doctoral scholars on all steps of scientific process; wrote multiple manuscripts as contributing and lead author, contributed to grant writing; presented literature reviews at weekly lab meeting

### **Publications in progress**

- **Lashnits E**, Thatcher B, Carruth A, Mestek A, Buch J, Beall M, Neupane P, Chandrashekar R, Breitschwerdt EB. *Bartonella* spp. ELISA seroepidemiology and associations with clinicopathologic parameters in dogs from the United States. *J Vet Intern Med*. Under revision.
- Gin TE, **Lashnits E**, Wilson JM, Breitschwerdt EB, Qurollo B. Demographics and travel history of imported and autochthonous canine leishmaniosis cases in the United States and Canada, 2006-2019. *J Vet Intern Med*. In press.
- **Lashnits E**, Maggi R, Jarskog LF, Bradley J, Breitschwerdt EB, Frohlich F. Schizophrenia and *Bartonella* spp. infection: a pilot case-control study. *Vector Borne Zoonotic Dis*. In press.

### **Publications**

Complete list of published work: <https://www.ncbi.nlm.nih.gov/sites/myncbi/collections/bibliography/48329001/>

- Breitschwerdt EB, Bradley JM, Maggi RG, **Lashnits E**, Reicherter P. *Bartonella* Associated Cutaneous Lesions (BACL) in People with Neuropsychiatric Symptoms. *Pathogens*. 2020 Dec 4;9(12):E1023.
- Easley F, Holowaychuk M, **Lashnits E**, Nordone S, Marr H, Birkenheuer A. Evaluation of serum procalcitonin in dogs with induced endotoxemia. *J Vet Intern Med*. 2020 Mar;34(2):653-658.
- **Lashnits E**, Neupane P, Bradley J, Richardson T, Thomas R, Linder K, Breen M, Maggi R, Breitschwerdt E. Molecular prevalence of *Bartonella*, *Babesia*, and hemotropic *Mycoplasma* species in dogs with hemangiosarcoma from across the United States. *PLOS One*. 2020; 15(1): e0227234.
- Purswell EK, **Lashnits EW**, Breitschwerdt EB, Vaden SL. A retrospective study of vector-borne disease prevalence in dogs with renal proteinuria: Southeastern United States. *J Vet Intern Med*. 2020 Mar;34(2):742-753.
- **Lashnits E**, Neupane P, Maggi R, Linder K, Bradley J, Balakrishnan N, Southern B, McKeon G, Chandrashekar R, Breitschwerdt E. Detection of *Bartonella* spp. in dogs after experimental infection with *Rickettsia rickettsii*. *J Vet Intern Med*. 2020 Jan;34(1):145-159.
- **Lashnits EW**, Dawson DE, Breitschwerdt E, Lanzas C. Ecological and Socioeconomic Factors Associated with *Bartonella henselae* Exposure in Dogs Tested for Vector-Borne Diseases in North Carolina. *Vector Borne Zoonotic Dis*. 2019 Aug;19(8): 582-595.
- **Lashnits E**, Grant S, Thomas B, Qurollo B, Breitschwerdt EB. Case Report: Evidence for vertical transmission of *Mycoplasma haemocanis*, but not *Ehrlichia ewingii*, in a dog. *J Vet Intern Med*. 2019 Jul;33(4): 1747-52.
- **Lashnits E**, Correa M, Hegarty BC, Birkenheuer A, Breitschwerdt EB. *Bartonella* seroepidemiology in dogs from North America, 2008-2014. *J Vet Intern Med*. 2018 Jan;32 (1): 222-231.



- Laprais AF, Bizikova P, **Lashnits EW**, Tucker A, Linder KE. Scleromyxoedema in a dog. *Vet Dermatol*. 2017 Oct;28(5):503-e119.
- Fuxe J, Tabruyn S, Colton K, Zaid H, Adams A, Baluk P, **Lashnits E**, Morisada T, Le T, O'Brien S, Epstein DM, Koh GY, McDonald DM. Pericyte requirement for anti-leak action of angiopoietin-1 and vascular remodeling in sustained inflammation. *Am J Pathol*. 2011 Jun;178(6):2897-909.
- Ni A\*, **Lashnits E\***, Yao LC, Baluk P, McDonald DM. Rapid remodeling of airway vascular architecture at birth. *Dev Dyn*. 2010 Sep;239(9):2354-66. \*Contributed equally to this work.
- Fuxe J, **Lashnits E**, O'Brien S, Baluk P, Tabruyn SP, Kuhnert F, Kuo C, Thurston G, McDonald DM. Angiopoietin/Tie2 signaling transforms capillaries into venules primed for leukocyte trafficking in airway inflammation. *Am J Pathol*. 2010 Apr;176(4):2009-18.
- Baluk P, Fuxe J, Hashizume H, Romano T, **Lashnits E**, Butz S, Vestweber D, Corada M, Molendini C, Dejana E, McDonald DM. Functionally specialized junctions between endothelial cells of lymphatic vessels. *J Exp Med*. 2007 Oct 1;204(10):2349-62.

## Selected Presentations

### ACVIM Forum

June 2020

*Online*

- Abstract poster presentation: Flea-borne bacterial pathogens from free roaming cats and their fleas

### Triangle Global Health Conference

October 2019

*Durham, NC*

- Abstract poster presentation: A novel perspective on mental illness: *Bartonella* infection in a population of chronically ill people with self-reported neuropsychiatric symptoms
- Selected breakout panel presentation, organizer and moderator: Pathways to One Health Research in Vector-Borne Disease

### International Conference on *Bartonella* as an Emerging Pathogen

September 2019

*Maisons-Alfort, France*

- Abstract oral presentation: A novel perspective on mental illness: *Bartonella* infection in a population of chronically ill people with self-reported neuropsychiatric symptoms

### NCSU CVM Research Forum

August 2019

*Raleigh, NC*

- Abstract poster presentation: A novel perspective on mental illness: *Bartonella* infection in a population of chronically ill people with self-reported neuropsychiatric symptoms

### NCSU Comparative Medicine Institute Symposium

August 2019

*Raleigh, NC*

- Abstract poster presentation: A novel perspective on mental illness: *Bartonella* infection in a population of chronically ill people with self-reported neuropsychiatric symptoms

### Seminar Series, Galaxy Diagnostics

July 2019

*Morrisville, NC*

- Invited speaker: Vector-borne diseases in cats

### ACVIM Forum

June 2019

*Phoenix, AZ*

- Abstract oral presentation: Molecular prevalence of *Bartonella*, *Babesia*, and hemotropic *Mycoplasma* species in dogs with hemangiosarcoma
- Abstract oral presentation: A novel perspective on mental illness: *Bartonella* infection in a population of chronically ill people with self-reported neuropsychiatric symptoms
- Session moderator: Small Animal Internal Medicine Research Abstracts



#### NCSU Graduate Research Symposium

March 2019

*Raleigh, NC*

- Abstract poster presentation: Ecological and socioeconomic drivers of *Bartonella henselae* exposure in dogs in North Carolina

#### NIH OD T32 Comparative Medicine Training Grants Joint Retreat

September 2018

*Minneapolis, MN*

- Research oral presentation: Vector-borne disease epidemiology and modeling in a One Health context

#### NCSU Comparative Medicine Institute Symposium

August 2018

*Raleigh, NC*

- Abstract poster presentation: Ecological and socioeconomic drivers of *Bartonella henselae* exposure in dogs in North Carolina

#### NCSU CVM Research Forum

August 2018

*Raleigh, NC*

- Abstract poster presentation: Ecological and socioeconomic drivers of *Bartonella henselae* exposure in dogs in North Carolina

#### Comparative Pathology Seminar Series, Stanford University School of Medicine

June 2018

*Stanford, CA*

- Invited speaker: “Vector-borne disease epidemiology and One Health: Transmission and disease manifestation of *Bartonella* species infection in dogs and humans.” June, 2018

#### NCSU House Officer Seminar Series

September 2017

*Raleigh, NC*

- “Epidemiology of Canine Bartonellosis”

#### NCSU CVM Research Forum

August 2017

*Raleigh, NC*

- Abstract oral presentation: *Bartonella* seroepidemiology in dogs from North America, 2008-2014

#### ACVIM Forum

June 2017

*National Harbor, MD*

- Abstract oral presentation: *Bartonella* seroepidemiology in dogs from North America, 2008-2014
  - Winner of ACVIM Resident Research Award

#### NCSU House Officer Seminar Series

October 2016

*Raleigh, NC*

- “Canine Bartonellosis: The hot new trend in fevers”

#### Science on Stage, NC Museum of Natural Sciences

September 2016

*Raleigh, NC*

- Selected TED-style talk: “Fighting like cats and dogs: Cat scratch fever in pet dogs”

## Grants

### Submitted/pending review

Winn Feline Foundation, New Feline Investigator Grant: Flea-borne pathogens in communities of fleas and free-roaming cats across geographic locations

Role: PI

Submitted Dec 2020, pending review

NIH R43/R44 Small Business Innovation Research Grant, Phase II: Development of a rapid, highly-sensitive digital drop PCR (ddPCR) assay for the improved diagnosis of *Bartonella* infective endocarditis

Role: consultant

Resubmitted Dec 2020, pending review



### Awarded

UW Companion Animal Fund: Flea-borne pathogens in fleas and free-roaming cats across geographic locations

Role: PI

July 2021-June 2023

NCSU Comparative Medicine Institute, Young Scholar Award, 2019: Flea-borne disease and the microbiome of fleas from free-roaming cats in North Carolina

Role: Co-PI

Spring-Summer 2019

AKC Canine Health Foundation (CHF Grant No. 2550), 2018: The role of *Bartonella* spp. exposure and cardiac genetic variation on the clinical expression of arrhythmogenic right ventricular cardiomyopathy in the Boxer dog.

Role: Co-investigator

February 2019-February 2021

AKC Canine Health Foundation (Grant AKC-CHF 01231A), 2017: Prevalence of *Bartonella* spp. infection in dogs with cardiac and splenic hemangiosarcomas within and between geographic locations.

Role: statistical analysis of data

January 2017-January 2021

### Awards and Honors

NCSU College of Veterinary Medicine, Department of Clinical Sciences: Graduate Student of the Year award, 2020

University of Washington Biostatistics Summer Institute scholarship and travel grant recipient: Statistics and Modeling in Infectious Diseases, 2018

ACVIM Forum 2017: Winner of ACVIM Resident Research Award

2017-2018 Travel Award for Postdocs and House Officers from the Office of Postdoctoral Affairs and the Graduate School, North Carolina State University

SUNY Chancellor's Award for Student Excellence, 2011

Western Veterinary Conference: Student scholarship recipient, 2011

NASA Astrobiology Institute Meeting: Sponsored attendee, 2005

PAC 10 All-Academic First Team (Diving): 2005

### Teaching experience

#### **Lecturer, MEDSC-V633 – Companion Animal and Equine Medicine II**

*University of Wisconsin*: Spring semester 2021-present

*Madison, WI*

- Didactic lectures for 3<sup>rd</sup> year veterinary students in endocrinology (4 lectures)

#### **Directed study supervisor, MEDSC-V699**

*University of Wisconsin*: Fall semester 2020

*Madison, WI*

- Supervised a 1 week remote/online directed study for one 4<sup>th</sup> year student: completed literature review on *Bartonella* diagnostic testing in dogs

#### **Course facilitator, VMC 920 – Small Group Problem Solving in Veterinary Medicine**

*NCSU*: Spring semester 2019, 2020

*Raleigh, NC*

- Lead weekly small group discussion in problem-based learning approach to clinical reasoning and critical thinking for first year veterinary students

#### **Advisor, One Health Club Epidemiology Rounds**

*NCSU*: Spring semester 2019 – Fall semester 2020

*Raleigh, NC*



- Lead monthly rounds for veterinary students on case reports and epidemiologic studies relating to One Health; advise student leadership

### **Veterinary student and house officer seminars**

*UW*

*Madison, WI*

- 2021 – Bartonella (1 hr, ACVIM House Officer Rounds)

*NCSU*

*Raleigh, NC*

- 2020 – Conn’s Syndrome (1 hr, Feline club)
- 2019 – Canine and Feline Vector-Borne Diseases (1 hr, ACVECC House Officer Board Prep Rounds)
- 2019 – Epidemiology and Statistics (2 hrs, ACVIM House Officer Board Prep Rounds)
- 2019 – Vector-borne Disease in Cats (2 hr, Feline club)
- 2018 – Approach to Effusions (1 hr, SCACVIM)
- 2018 – Anemia in Cats (2 hrs, Feline club)
- 2017 – Conn’s Syndrome (1 hr, Feline club)
- 2016 – Emergency Management of Feline Urethral Obstruction (2 hrs, SVECCS)
- 2016 – Feline Infectious Peritonitis (1 hr, Feline club)
- 2015 – Toxoplasmosis: A historical perspective (1 hr, Feline club)

### **Veterinary student teaching laboratory assistant**

*UW*

*Madison, WI*

- 2021 – Health, History, and PE laboratory (one 1 hr lab)
- 2020 – Low-stress handling laboratory (two 1 hr labs)

*NCSU*

*Raleigh, NC*

- 2020 – Clinical skills laboratory (one 1 hr lab)
- 2019 – Clinical skills laboratory (one 3 hr lab)
- 2019 – Physical exam laboratory (one 3 hr lab)
- 2017 – Clinical skills laboratory (two 3 hr labs)
- 2017 – Physical exam laboratory (two 3 hr labs)
- 2016 – Physical exam laboratory (two 3 hr labs)

### **Teaching Assistant, Astrobiology**

*Stanford University: Winter quarter 2005, 2006*

*Stanford, CA*

- Supervised and evaluated approximately 20 students each year in a guest lecturer based seminar

## **Mentoring experience**

NCSU Internal Medicine resident journal club

2018-present

- Guide residents in publication selection and review, assist with leading discussion on study design, limitations, interpretation of results (approx. 5-10 times per year, as requested by residents)

NCSU CMI Summer Interdisciplinary Research Initiative, *Undergraduate mentor* 2019-present

- Mentored undergraduate student for summer research project; student presented results of summer research as a poster at three conferences as an undergraduate
- Abstract poster selected for American Society of Tropical Medicine and Hygiene Annual Meeting, 2019: “Prevalence of two bacterial pathogens in fleas and tissues from free roaming domestic cats”
- Undergraduate research grant awarded, Spring semester 2020: “Evaluation of Flea Borne Pathogens in Fleas of Free Roaming Domestic Cats”
- Currently pursuing PhD at NCSU





Royal Veterinary College and London School of Hygiene & Tropical Medicine, Summer 2019  
One Health MSc Programme, *External supervisor*

- Mentored MSc student for thesis research project completed at NCSU: “Characterizing zoonotic bacteria in the microbiome of fleas collected from community cats in the United States”
- Student currently pursuing PhD at University of Wyoming

NCSU Internal Medicine Intern Mentor 2017-2018

## Non-Degree and Short Courses

**ComSciCon Triangle** 2021

- Workshop series dedicated to developing science communication skills, with the goal of producing an original work of science communication for publication

**Certificate for Diversity and Inclusion in Veterinary Medicine, Purdue University** 2020-2021

- Year-long online certificate program for faculty and administrators in veterinary medicine, dedicated to creating inclusive work and learning environments. Includes community service participation and capstone paper.
- Certificate in progress (expected June 2021)

**Introduction of the Principles and Practice of Clinical Research, NIH OCR** 2020

- Online certificate course training healthcare professionals on how to safely and effectively conduct clinical research. Topics include biostatistical and epidemiologic methods, study design, protocol preparation, patient monitoring, quality assurance, and ethical and legal issues.
- Certificate granted July 2020

**R for Data Science workshop series, NC State University Libraries** 2019

- Semester-long series of online workshops providing a self-directed learning opportunity to develop functional skills using R to work with data; follows the free online textbook *R for Data Science* (Grolemund and Wickham)

**University of Washington Biostatistics Summer Institute** 2018, 2020

- Statistics and Modeling in Infectious Diseases, Statistics for Clinical and Epidemiological Research: Immersion courses in modern methods of statistical analysis, mathematical modeling, and clinical research

**Data Matters™: Data Science Short Course Series** 2017

- Week-long series designed to teach data analytics skills and encourage integration of data science methods into research designs. Courses included Introduction to R, Programming in R, and Visualization in R.

**AVMA Veterinary Leadership Experience** 2010

- Conference designed to strengthen leadership skills and non-technical competencies including teamwork, communication, and professionalism

**Envirovet Summer Institute** 2009

- Educational immersion in conservation medicine and environmental and public health; travel to Tanzania for hands-on experience working in a developing nation

## Leadership & Service Activities

Improve International, Small Animal Medicine Distance Learning course 2020-present

- Consultant, Canine and Feline Infectious Diseases modules

NCSU Small Pack Leader for International Student Orientation 2019-2020

NCSU Academy of Educators *Member* 2018-present

- Education Day planning committee member, 2018-2020



• Education Day session chairperson, 2019 and 2020	
Ad hoc reviewer:	2018-present
• Preventative Veterinary Medicine, Journal of Wildlife Diseases, Experimental and Applied Acarology, American Journal of Tropical Medicine and Hygiene, Vector Borne and Zoonotic Diseases, Journal of Veterinary Internal Medicine, Topics in Companion Animal Medicine, Journal of the American Animal Hospital Association	
SciREN Lesson Plan workshop and Networking Event, <i>participant</i>	2018
Stanford University OVAL Volunteer	2013-present
• NC Leadership team, 2019-2021	
• Admissions ambassador conducting applicant interviews and representing Stanford at local college fairs	
Campus Cycling Collective	2013-2015
• Weekly group bicycle ride leader and bike racing team member	
Ride for World Health <i>National Team Rider</i>	2012
• Cross country bicycle ride to educate communities across the nation about worldwide public health issues and raise money for beneficiary organizations	
American Veterinary Medical Association	2008-present
• <i>Student Chapter - President, 2010; Philanthropy Chairperson: 2009-2010</i>	
Omega Tau Sigma Professional Fraternity, Beta Chapter	2008-2012
• <i>Unity Chairperson 2008-9, member, 2008-2012</i>	
Cornell University Wildlife Health Center	2008-2011
• <i>Supervisor, 2009-11: Trained veterinary student volunteers; managed cases under DVM supervision at hospital for comprehensive medical and surgical care of sick and injured native wildlife</i>	
Varsity Diving Team, Stanford University	2001-2005

## Technical Skills

Software experience: R, Tableau, ArcGIS, Adobe Photoshop; limited SAS, Carto, Github

## Professional Licenses and Memberships

Diplomate of the American College of Veterinary Internal Medicine	2018-present
WI Veterinary Medical License	2020-present
NC Faculty Veterinary Medical License	2015-2021
NY State Veterinary Medical License	2012-2015
American Society for Rickettsiology – member	2021-present
Wisconsin Veterinary Medical Association – member	2021-present
Graduate Women in Science – member	2019-2020
International Society for Companion Animal Infectious Diseases – member	2019-present
American Society of Microbiology – member	2018-2020
American Society of Tropical Medicine and Hygiene – member	2018-present
NCSU Comparative Medicine Institute – Associate member	2018-2020
American College of Veterinary Internal Medicine – member	2015-present
NC State Veterinary Medical Association – member	2015-2021
American Veterinary Medical Association – member	2012-present





NY State Veterinary Medical Association – member

2012-2015